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INTERIM REPORT ON AN EXCAVATION IN THE MAHADEO HILLS.

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INTERIM REPORT

on an Excavation conducted by Dr. G. R. Hunter, by permission of Government, in a rock-shelter, hereinafter called Dorothy Deep Rock-Shelter No. 1, situated in the valley known as Dorothy Deep, about 2 miles W.N.W. of Pachmarhi in the Mahadeo Hills, Central Provinces, India.

Situation.

FROM Pachmarhi the Shelter is approached by motor car to a point about 3 furlongs from the metalled road. Progress is then made on foot along the track leading to Dorothy Deep, for about 4 furlongs. Here, at an unmarked point, the track must be quitted, and a course laid due North across thick jungle until one emerges on the steep southern scarp (looking North) of a wide valley. This scarp is then negotiated for a distance of about 150 yards at an angle of about 45 degrees. But although thus somewhat difficult of approach from above, the Shelter is easily reached from the valley below, and would constitute a convenient and accessible home for hunters and trappers operating in the wide and well-stocked valley of Jambudwip which spreads itself for a mile in front and several miles East and West—right and left—of the cave. The average level of the terrace or plateau of this valley is about 100 feet below the Shelter, while the intersecting gorges descend a further 200 feet. The Shelter constitutes a cavity in the sandstone cliff, some 20 feet in height.

The floor of the Shelter is some 70 feet at its greatest length, West to East, and some 30 feet at its greatest width, North to South, in the region that I called the 'nullah section' in my 1933 report,* which extends along the meridian 30, of the contour sketch accompanying this report, from parallel L southwards.

Of this floor a portion, 36 feet long and from 11′ to 20′ wide, was covered with soil and rock debris, varying in depth from 2 inches along meridian 0 by progressive increase to over 50″ along line 18, and probably to greater depths in the higher and as yet unexcavated meridians. This corresponds with the fact that whereas the rock-bed of the Shelter appears to be almost level, the floor surface, before excavation, showed a slope of about 1 in 20 towards the North and 1 in 5 towards the West. This inclination of the surface moreover, corresponds with the folding of the rock. The Shelter seems to have been formed by pressure causing a local fault in

* Unpublished.

the rock, a diamond-shaped cavity overhung by separated strata of rock, slabs of which have from time to time detached themselves and slid forward on to the floor of the cave. Sometimes these slipping slabs have disintegrated on falling into small chunks of sandstone interspersed with minute quartz pebbles. Other slabs have remained substantially intact, their level undersides parallel to the level face of the bed-rock, and with a layer of soil imprisoned between them. Steps in the process can be clearly seen in photo No. 1, Plate I.

Excavation.

The previous excavation undertaken at Christmas 1932 had been confined to the nullah area and a trial pit close to the rock-wall. In both of these areas bed-rock had been reached at about 2 feet. I determined therefore to commence my Diwali 1934 excavation by a trial trench right across the breadth of the cave from the limit of the northern extension of the surface soil on P to the wall of the Shelter on K. This trench revealed a depth of soil to as much as 5 feet at D×21. The soil, moreover, was compact and stratified, with signs of only local disturbance here and there by white ants. This comparatively undisturbed stratification, which I had failed to discover in my earlier excavations in Jambudwip Shelter No. 1 during the hot weather of 1933, was important, as it would enable us to determine the chronological sequence of the objects discovered. This was on October 24th. Meanwhile I had on October 23rd selected my datum level and made a contour plan of the surface soil as well as I could with the assistance of 3 coolies, one spirit level and tape-measure marked in inches lent by the P. W. D., a ball of string, and a measured rod, marked in centimetres, lent me by the Royal Anthropological Institute, London, for quite other purposes! The P. W. D. had declined my request for the loan of an overseer, so I had to do as best I could. The accompanying plans (Appendix V) are, therefore, probably full of minor inaccuracies, but are, I hope, sufficiently reliable for our purposes. I had arrived in Pachmarhi on the night of Saturday, October 20th. The 21st was Sunday; and Monday the 22nd was spent in mobilising my staff. I was able to get Babulal, one of the men I had trained in 1933; but the two other recruits were new men, and, owing to the unsettling influences of Diwali, not always the same men! Work was started on the 23rd, Tuesday, and continued daily to the 11th November inclusive, except for two Sundays—19 days in all. The Shelter was usually reached about 10 A.M., and excavation made from then to about 4 P.M. daily.

On October 25th, having completed the digging of the trench to bed-rock, I had to decide where to start my systematic exploration. It was clear that with this depth of soil and extent of area it would not be possible

to excavate the whole matrix in the 19 days at my disposal. Every cubic inch of soil had before removal to be carefully negotiated, to avoid, as far as possible, damaging any bone, pottery, or other fragile relics it might contain; and, after removal, had to be passed through a fine meshed sieve to be sure that no minute objects—such as the tiny beads found in the 1932 and 1933 excavations—be overlooked and lost. I could, of course, have employed more men, but only at the expense of effective supervision, as I had learnt in my earlier explorations. I chose accordingly to start work on the area that lay west of my trench, area A to I by 19 to 0, as this was likely to prove shallower in depth, and therefore of *less* importance. I consider it always best to start on the less important areas in order that the experience then gained, of the nature of the soil, state of preservation of bones, and, consequent thereon, the best methods of attacking the problem of their successful excavation, may be available for work on the areas of greater importance. I started therefore on the excavation of this area, dividing it up into such sections and levels as the evidence of the strata successively uncovered suggested as convenient. These sectional areas are listed in Appendix I, and contents of the more important classified in Appendix II. The numbering is taken from their serial numbering in my field notes, and is therefore not completely consecutive (particular objects found within the areas having also received serial numbers in my field notes). My field notes are herewith reproduced—Appendix IX—since they record the impressions of the moment, which, even when subsequently shown to be misconceived, are not without interest to students of the material excavated. In these notes 'giti' means small quartzite and sandstone pebbles.

Conclusions.

My conclusions on points of detail are given in Appendix III (Analysis of Bone, Pottery and Quartzite implements). These and my general conclusions are of course subject to what new knowledge may be obtained from the excavation of the remaining—and, as I surmise, more important—portion of the Shelter's floor-deposits. With this reservation my general conclusions—taking into account the experience of my 1932 and 1933 excavations—are as follows:—

1. Dorothy Deep No. 1 (Like Jambudwip No. 1 and 2 and Monte Rosa) has been inhabited by men who for some purpose or purposes used flint implements of a distinctive character that has been found widely in other parts of the world, and is classed by us as Mesolithic in the sequence of prehistoric cultures, and labelled Tardenoisian, after one of its characteristic sites, the village of Tardenois, in France.

2. While the exact purpose of these implements is unknown, it *may* have been to barb arrows or harpoons.

3. The multiplicity of shapes and sizes of implements, characteristic of most stone-using folk, is notably absent, and suggests that our men depended upon another material, or materials, for many purposes. But all trace of metal or polished stone in association with the quartz implements and flakes being absent, one is forced to conclude that in Pachmarhi, as in Europe, these people lived before the metal age, and even the Neolithic age. Doubtless the material on which they depended for ordinary purposes was wood.

4. At a later stage the Shelter was inhabited by men using pottery. Though I have not yet found any sterile layer separating the two cultures, and though a few quartz flakes have been found in the upper layers where pottery abounds, and a few pottery fragments at a depth of 9 inches where flakes abound, yet I doubt whether there was any overlap in time between the two cultures, the depth of overlap in space being so limited—2 or 3 inches at the most—as to suggest nothing more than the inevitable disturbance of the surface soil to a depth of 2 or 3 inches by the first pottery users. Even if several thousand years separated the two cultures one would not expect to find any depth of soil separating them, since in the nature of the local circumstances, soil can only accumulate here whilst the Shelter is in occupation with consequential erosion and pulverisation of the fragments of fallen sandstone by perpetual contact with human feet, hands and implements. During an uninhabited period the soil on the floor is as likely to diminish as to accumulate, such accretion as may be deposited by occasional rock-falls being offset by wind erosion.

5. Whereas the skeletons found in Jambudwip No. 1, though found in soil impregnated with quartz flakes and implements, *may* have represented interments of a later age, pottery fragments being found in their vicinity, the skeleton found in Dorothy Deep No. 1 admits of no such interpretation. It was found in association with the typical Tardenoisian flakes and implements, but without a vestige of pottery, which indeed was entirely absent not merely at the level of the skeleton, 18″–21″, but for a further 10″ above it. The surface soil down to 6″ was however strewn with pottery—about 100 fragments in the area E $\frac{1}{2}$ to I′ $\frac{1}{2}$ × 16$\frac{1}{2}$ to 12$\frac{1}{2}$, the very area in which, a foot deeper, the skeleton was found. Now if this interment was of the pottery-using period and the soil excavated to a depth of 2 feet for the purpose, how comes it that in filling in the excavation after burial none of the excavated earth was thrown in, or, if thrown in, only after weeding out every piece of the 100 fragments of pottery? This question has only to be

asked to make it evident that the interment in question is a pre-pottery-using mesolithic interment. It is probable that some at least of the interments in Jambudwip No. 1 were also Tardenoisian, as I suggested in my earlier reports:—probable but not certain; whereas in the case of this Dorothy Deep No. 1 skeleton it is *certain*. It is to be added that so far no beads or other objects have been found in association with it. It is unfortunate that the cranium, except for two very small pieces, had been entirely devoured by white ants.

6. While several minor varieties are discernible among the quartz implements, the number found in this Diwali excavation is insufficient to attempt to establish a chronological sequence. But it is not unlikely that the exploration of the remainder of the floor, P to M × 36 to 21 may make this feasible. The matter is of some importance as will be gathered from the attached extract from a letter sent me by Professor Henry Balfour, F.R.S., Curator of the Pitt Rivers Museum, Oxford.

7. So far no evidence has been found of the presence of pre-mesolithic man in these shelters. However, only a very small area, A–D × 19–16 has so far been excavated to a depth exceeding 3 feet.

8. The principal points remaining to be settled are therefore

(*a*) The race of the Tardenoisian inhabitants.

(*b*) The correct sequence of the different variety of 'barbs'—equilateral, isosceles, scalene, crescentic.

(*c*) The existence of any earlier palæolithic cultures.

(*c*) will be definitely decided, (*b*) probably and (*a*) possibly. (*Viz.*, if we find another skeleton with cranium intact. For importance of this, see attached letter from Oxford University Committee for Anthropology, Appendix VIII) when the remainder of the floor is excavated. This I propose to undertake, with Government's permission, after the termination of the courses of lectures I am giving in Morris College on Saturday, 2nd March 1935.*

Appendix I.

List of Sectional Areas excavated.[1]

No. 1. Trial Trench from surface to bed-rock, and from P to J by 19 to 21.

2. B–D2 × 19–7, From surface to 6″ below surface.

3. A–B × 19–15, From surface to 6″.

6. B–D2 × 19–7, From 6″ to 10″.

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* Accomplished. Report may be expected next year.

[1] The letters and numbers are to the plans. See Appendix V.

7. D2–E3 × 19–12, From surface to 6″.
8. D2–G × 12–6, From surface to 4″.
9. G to Rockwall × 12–6, From surface to 8″.
10. E3 to I × 19–12—Xmas Excavation surface accumulations 6″–18″.
11. D2–E3 × 19–12, From 6″–10″.
12. D2–G × 12–6, From 4″–10″.
13. A–B × 15–9, Surface to 6″.
14. A–G × 19–14. From previous levels to a maximum depth of 18″.
18. A–D × 19–14. From previous levels to a maximum depth of 24″.
19. A–D × 14–8. From previous levels to a maximum of 18″.
20. A–D × 8–0. From surface to maximum depth of 8″.
21. D to Rockwall × 8–0. From surface to 1″.
22. ,, ,, 1″ to 2″.
23. ,, ,, 2″ to 3″.
24. D to Rockwall × 6–0. From 3″ to 5″.
25. D to Rockwall × 6–0. From 5″ to 8″.
26. A–G × $2\frac{1}{3}$–0. 8″ to bed-rock which is at from 6″ to 16″.
27. A–G × $3\frac{2}{3}$–$2\frac{1}{3}$. 8″ to 13″.
28. A–G × $3\frac{2}{3}$–$2\frac{1}{3}$. 13″ to bed-rock, which is at from 16″ to 21″.
29. H–I × $3\frac{2}{3}$–0. From under rockshelf.
30. A–G × $6\frac{1}{2}$–$3\frac{2}{3}$. 8″ to maximum depth of 14″.
31. A–G × $6\frac{1}{2}$–$3\frac{2}{3}$. From 10′14″ to bed-rock which is at 21″ to 24″.

32 to 35. A–G × 9–$6\frac{1}{2}$. Removal of fallen rocks.

36. D–F × 19–9. From previous levels to maximum depth of 20″.
37. D–F × 19–9. From above level to maximum of 26″.
39. F–I × 19–12. Xmas excavation to maximum depth of 24″.
41. B–D × 19–9. From previous levels to maximum depth of 31″.
42. B–D × 19–9. From above level to bed-rock, which is at from 17″ to 51″.
45. A–B × 19–9. From previous levels (varying from 6″ on A to 22″ on B) to a maximum depth of 28″ on B.
47. A–B × 14–9. From above level to bed-rock which is at from 12″ to 34″.
48. A–B × 19–14. From previous level to bed-rock, which is at from 34″–51″.

Appendix II.

Classified record of Bone, Pottery, Quartz Flakes, Quartz Implements, found in given areas at different levels.

A. Pottery.

Sectional Area 21. 1 tin-full at surface–1″.
22. (Part of 21) 2 tin-full at 1″–2″.
23. (Part of 22) 1 tin-full at 2″–3″.
24. ($\frac{3}{4}$ of 22) $\frac{1}{2}$ tin-full at 3″–5″.
25. ($\frac{3}{4}$ of 24) 1/24 tin-full at 5″–8″ (*i.e.* 4 very small fragments).
20. 1 tin-full at surface to 8″.
26, 27, 30. (Twice area 20) $\frac{1}{4}$ tin at 8″–16″.
28 & 31. (Same size as, and partly underneath 20) Nil at 13″–19″ (bed-rock).

N.B.—In this area A—Rockshelf by 0–8, no find of pottery definitely assignable to below 9″ from surface. Bed-rock in the area is from 3″–19″.

B. Flakes in Same Areas.

Sectional Area 21. Flakes 4
22. ,, 21
23. ,, 14
24. ,, 135. $\frac{1}{4}$ tin.
25. ,, $\frac{1}{4}$ tin.
20. Flakes $\frac{1}{3}$ tin.[2]
26, 27, 30. Flakes 1 tin.
28, 31. Flakes $\frac{1}{3}$ tin.

N.B.—Very few flakes above 3″. Below this about evenly distributed to within an inch or two of bed-rock.

C. Bone in Same Areas.

Sectional Area 21. *a & b.* $\frac{1}{4}$ of a glass.[3]
22. *a & b.* $\frac{1}{2}$ of a glass.
23. *a & b.* $\frac{1}{3}$ of a glass.
23. *c.* 1 small fragment.
24. *a & b.* $1\frac{1}{2}$ glasses of small pieces and 3 large fragments.
24. *c.* 1 small fragment.
25. *a & b.* $\frac{1}{2}$ glass.
25. *c.* 10 small fragments.
20. *a & b.* 2 glasses.
20. *c.* $\frac{1}{6}$ glass.

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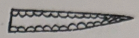
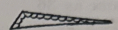
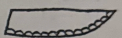
[2] Probably from first 2 inches. Tin is ordinary cylindrical 50-cigarette tin.

[3] glass = liqueur glass; content 2 tablespoonfuls.
a = Showing normal disintegration.
b = fossilized.
c = completely calcified.

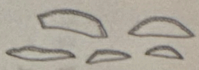
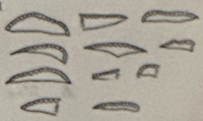
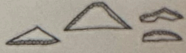
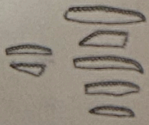
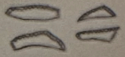
For area numbers, see list, Appendix I.

26, 27, 30. *a & b.* 2 glasses.
26, 27, 30. *c.* 2 glasses, nearly all from 26 N.B.
28, 31. *a & b.* 6 fragments (all from 31).
28, 31. *c.* ⅜ glass. (28 has *c.* only).
29A. *c.* ½ glass (*i.e.*, all except 3 fragments and probably all from bed-rock).

D. Quartz Implements in Same Areas. (*Size in cm.*)

Sectional Area			
	21.	Surface–1″	Nil.
	22.	1″–2″	1 trapeze.
	23.	2″–3″	Nil.
	24.	3″–5″	1 borer ? 
			1 scalene. 
			2 crescents. 1·6 × ·3 ; 2·1 × ·7.
	25.	5″–8″	1 H[4]
			1 crescent fragment ? 
			1 crescent fragment ?
			1 isosceles.
	20.	Surface–8″	1 H. 2·6 × ·8.
			1 H. fragment 1·9 × ·5.
	26.	6″/8″ to bedrock (16″)	1 H. 2·4 × ·75.
			1 fragment.
			1 scalene ? 2·2 × ·65.
			1 cresc.-scalene. 1·4 × ·4.
			3 cresc. 2 × 1 ; 1·4 × ·45 ; 1·2 × ·3.
	27.	8″/13″ *b.s.*[4] to 3″/8″ above bed-rock	1 fragment.
			1 cresc.-scalene. 1·3 × ·45.
	30.	8″/4″ *b.s.* to 6″/8″ *a.b.*	1 scalene. 2·35 × ·5.
			1 H. 2·6 × ·5.
	28.	From 8″ *a.b.*[4] to bed-rock	1 H. 2·1 × ·5.
			1 H. 2·1 × ·5.
	31.	From 6″ *a.b.* to bed-rock	Nil ?

[4] H = worked on longest side only ;
b.s. = below surface ;
a.b. = above bedrock.

	Bone	Pottery	Flakes	Implements[5]
Area 7 14 Sq. ft. S.—6″	Nil	½ tin	5	Nil
Area 11 *Idem* 6″—10″	Nil	6 fragments	11	
Area 36 *Idem* & 6 Sq. ft. 10″—20″	*a & b* a dozen very small fragments *c* 2 fragments	4 fragments	⅜ tin	
Area 37 Same as 36 20″—26″	*a & b* 1 glass *c* 2 fragments	1 fragment	1 tin	
Area 40 18″—21″				
Area 8 S.—4″	1 glassful	⅜ tin	⅛ tin	
Area 12 *Idem* 4″—10″	1 small fragment	1 very small fragment	⅛ tin	
Area 2 B-D × 9—19 S.—6″	*a & b* 3½ glasses	1¼ tin	¼ tin	Nil
Area 6 B-D2 × 7—19 6″—10″	*a & b* 1¾ glasses & 2 large fragments *b-c.* 4 fragments	1 tin	⅛ tin	Nil

[5] The diagrams given here and on p. 37 represent half the original size of the implements.

	Bone	Pottery	Flakes	Implements[5]
Area 14, 19 B-D × 8—19 at 10″—18″ & A-B × 8—19 at 6″—18″	*a* & *b* 2½ glasses & 3 large fragments *b-c.* 4 fragments	1⅛ tin	⅜ tin	
Area 41 B-D × 9—19 9″—31″	*a*, *b* ⅛ glass *c* ⅛ glass	5 small fragments	⅜ tin	
Area 42 B-D × 9—19 to bed-rock	*a-b.* Nil *c.* 1 medium-sized fragment	Nil	1/10 of tin	

Appendix III.

Analysis of Classified Record.

Analysis of Quartzite Implements.—Area 0–8 by A to 1 (rockshelf). Bed-rock at from 6″ to 20″. Very few flakes in first 3″. Below this to 8″ fairly common, but most abundant in the lower half of the soil.

Similarly in area D–F × 9–19, where bed-rock is in places as much as 44″ below surface (if not more), it is the lower half, from 20″ downward that seems likely to be best represented; while from 10″–20″ also flakes are abundant; whereas for first 10″ they are rare.

The same distribution is observed in the area A–D × 9–19; except that below 31″ flakes again become rare. It is significant that though flakes have been found on bed-rock itself, this has been in cases so far only when bed-rock was not more than 40″ below surface, the lowest find of this nature occurring at B½–D × 14–15½ at a depth of 39″. Whereas section A–D × 15–19 which was excavated below this level to bed-rock at over 50″, was absolutely sterile in this lowest level.

The find of worked or partly worked implements, whole or fragmentary, is roughly proportionate to the find of flakes, a phenomenon already noted in my earlier excavations, suggesting that throughout the period of this flint culture the Shelter was used as a factory. This is what one would expect. For the quartz pebbles being found abundantly in the immediate neighbourhood, what more natural than that the men should have chipped them at home in the shade and shelter of the cave in their leisure hours, rather than outside exposed to sun and rain?

On the material at present available it is not possible to establish a definite time sequence of the shapes of the implements. But it is not improbable that the completed excavation will furnish sufficient examples to permit this.

Analysis of Bone.

Bone is found throughout the levels; getting rarer as we go deeper. This is probably due simply to disintegration, pulverization and disappearance.

It is to be noted that as we approach bed-rock what bone there is found in a more and more calcified condition. On bed-rock itself only calcified fragments have been found.

The skeleton found at E½–F½ × 12½–16½ was in a state of advanced disintegration. It was with the greatest difficulty that the bones were uncovered without completely pulverizing them in the attempt. They were then coated with candlegrease, heated to near flash-point, and removed after congelation. Disintegration in the case of this skeleton had proceeded rather further, I think, than in the case of those submitted to Dr. Buxton in 1933. The body lay from East to West, head to East, slightly higher than feet, to West, following the same plane as the surface soil. The body was on its back, fully extended, arms to sides; undoubtedly a deliberate interment. No pottery, beads, or ornaments. Flakes in abundance, and finished implements in the usual proportion.

Analysis of Pottery.

In first eight feet of cave from lower (Western) end, *i.e.*, area 0–8 × A–1, where bed-rock is nowhere more than 21 inches from the surface, no find of pottery below 9″ from surface, and very little below 5″.

In the next ten or eleven feet up to the line of the Trial Trench, *i.e.*, in area 8–19 by A–1, where bed-rock extends to a depth of at least 50″ below surface, pottery is found down to 20″ in one place (one small fragment only), but is rare below 10″.

It is to be noted that in area where skeleton was found, *i.e.*, E½–F½ × 12½–16½, partially below the excavation of Xmas 1932, no pottery was found in the soil above and surrounding the skeleton, while in the upper soil excavated in Xmas 1932, it was noted at the time that pottery was found abundantly down to 6″, but only 3 or 4 fragments below 6″.

It is desirable that the pottery be submitted to experts in Europe for classification.

Appendix IV.

Key to Plans I and II.

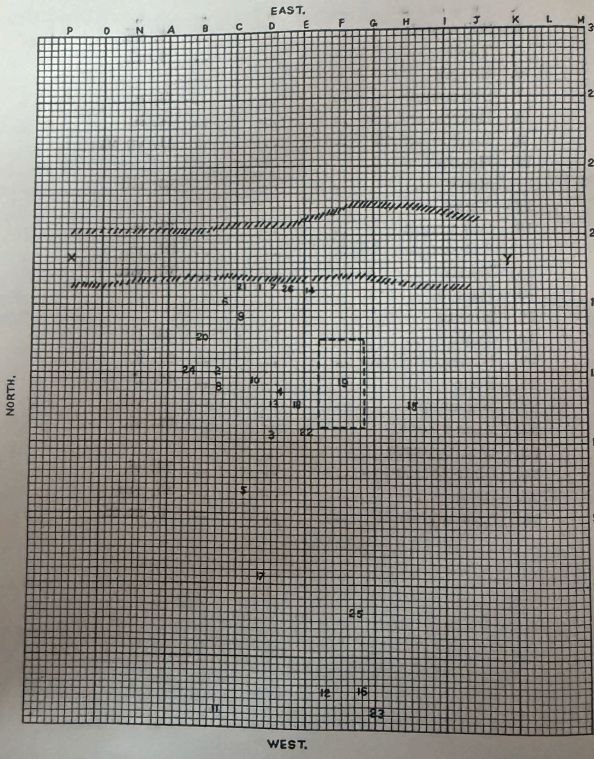
No.		Catalogue number.[6]
1.	Hearth	5. ii–vii.
2.	Piece of Pottery	4. i.
3.	Piece of Bone	5. i.
4.	Soil sample	6. xii.
5.	Tooth	6. xi.
6.	Hearth	
7.	Soil sample	14. v.
8.	Hearth, and jaw	14. iv.
9.	Bone in hearth	14. vii–ix.
10.	Hearth	
11.	Bones	20. viii.
12.	Ashes	
13.	Soil sample	36. v.
14.	Soil sample	37. vi.
15.	Tooth	10. viii.
16.	Hearth	
17.	Hearth	
18.	Teeth	38. i.
19.	Human skeleton	40. ii.
20.	Bone	46. i.
21.	Soil sample	1. viii.
22.	Rock sample	36. vi.
23.	Wood sample	
24.	Piece of iron	14. vi.
25.	Bone	25. viii.
26.	Bone and shell	6. ix, x.

[6] See Appendix VI.

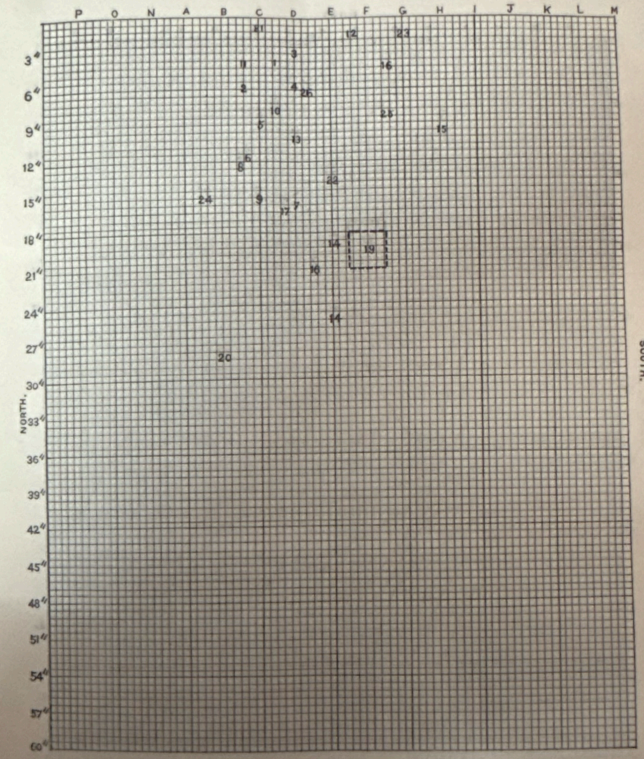
Appendix V.

Plans.

I. Horizontal Section.

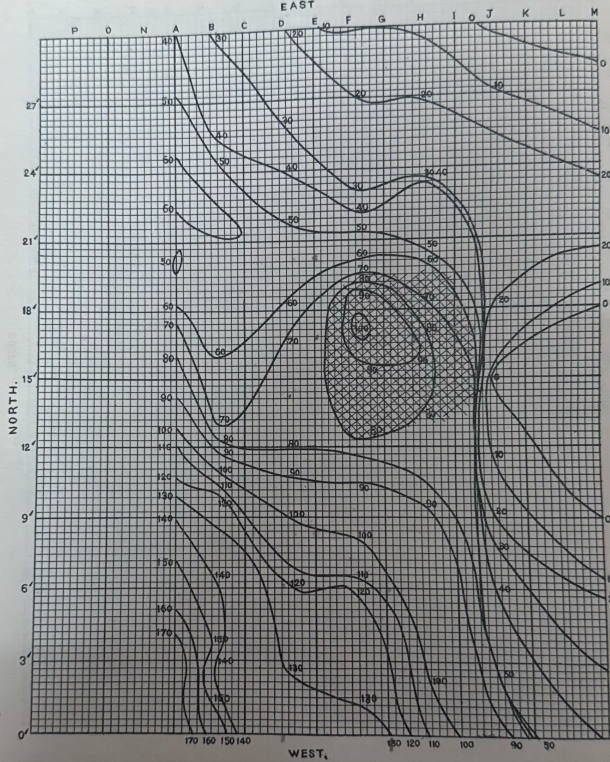


II. Vertical Section.



III. Surface contour before excavation.

Shading = Site of Xmas 1932 excavation. Contours are in cm. below datum.



Appendix VI.

Catalogue of Objects excavated in Dorothy Deep Rock-Shelter No. 1, during Diwali Vacation, 1934.

No.			
1.	i.	Pottery	From Trench P–I, ×21–19.
	ii.	Flakes	,, ,,
	iii.	Bone	,, ,,
	iv.	Soil samples	,, ,,
	v.	Crab	,, ,,
	vi.	Charcoal	,, ,,
	vii.	Quartz implements ..	,, ,,
	viii.	Soil sample ..	,, ,,
2.	i.	Pottery	"West of Trench", *i.e.*, A–B ×15–19; B–D ×9–19. Surface to 6".
	ii.	Flakes	,, ,, ,,
	iii.	Charcoal	,, ,, ,,
	iv.	Bone	,, ,, ,,
	v.	Glass	,, ,, ,,
	vi.	Rock samples ..	,, ,, ,,
	vii.	Ivory	,, ,, ,,
	viii.	Shell	,, ,, ,,
	ix.	Quartz implement ..	,, ,, ,,
4.	i.	Pottery	B–C ×15 at 6".
5.	i.	Bone	D ×12¼ at 3".
	ii.	Charcoal	C–D ×19–20 at 4".
	iii.	Bone	,,
	iv.	Flakes	,,
	v.	Pottery	,,
	vi.	Pigment ?	,,
	vii.	Shell of crab ..	,,
		(& bones of rhodent ?)	,,
6.	i.	Pottery	B–D2 ×19–7 at 6"–10".
	ii.	Flakes	,, ,,
	iii.	Bone	,, ,,
	iv.	Glass	,, ,,
	v.	Ivory	,, ,,
	vi.	Charcoal	,, ,,
	vii.	Shell	,, ,,
	viii.	Pigment ?	,, ,,

? Venue not certain.

No.			
	ix.	Shell	D1×19 at 6″.
	x.	Bone	,,
	xi.	Ivory	C×11 at 9″.
	xii.	Soil	D×14 at 6″.
7.	i.	Flakes	D1–E3×19–12 at surface to 6″.
	ii.	Pottery	,, ,, ,,
	iii.	Shell	,, ,, ,,
	iv.	Charcoal	,, ,, ,,
8.	i.	Flakes	D2–G×13–6. Surface to 4″.
	ii.	Pottery	,, ,,
	iii.	Bone	,, ,,
	iv.	Charcoal	,, ,,
	v.	Glass	,, ,,
	vi.	Quartz implements	,, ,,
	vii.	Shell and rhodent bones	,, ,,
	viii.	Pigment (?)	,, ,,
	ix.	Ivory	,, ,,
9.	i.	Pottery	G–Rock×12–6. Surface to 8″.
	ii.	Flakes*	,, ,, ,,
	iii.	Flakes*	,, ,, ,,
	iv.	Quartz implements*	,, ,, ,,
	v.	Quartz implements*	,, ,, ,,
	vi.	Bone	,, ,, ,,
	vii.	Stone, neolithic ?	,, ,, ,,
	viii.	Charcoal	,, ,, ,,
	ix.	Metal (iron)	,, ,, ,,
	x.	Shell	,, ,, ,,
	xi.	Pigment ?	,, ,, ,,
10.	i.	Flakes	Surface of Xmas excavation.
	ii.	Bones	,, ,,
	iii.	Pottery	,, ,,
	iv.	Charcoal	,, ,,
	v.	Rock samples	,, ,,
	vi.	Shell	,, ,,
	vii.	Coin	,, ,,
	viii.	Tooth	H×14–13 at 10″.

* Provenance uncertain ; identification ticket lost in removal.

No.			
11.	i.	Flakes	D1–E3 × 19–12 at 6″–10″.
	ii.	Pottery	,, ,,
	iii.	Rock samples ..	,, ,,
	iv.	Quartz implement ..	,, ,,
12.	i.	Flakes	D2–G × 12–6 at 4″–10″.
	ii.	Bone	,, ,,
	iii.	Charcoal	,, ,,
	iv.	Pottery	,, ,,
	v.	Ivory	,, ,,
	vi.	Quartz implements ..	,, ,,
	vii.	Rock samples ..	,, ,,
13.	i.	Flakes	A–B × 15–9. Surface to 6″.
	ii.	Pottery	,, ,,
	iii.	Bone	,, ,,
	iv.	Shell and rhodent ..	,, ,,
	v.	Pottery	A–B × 11–10 at 6″ to 8″. *
14.	i.	Pottery	A–D × 19–14 at 10″–18″ on B–E3, and at 6″–18″ on remainder.
	ii.	Flakes	,, ,, ,,
	iii.	Bone	,, ,, ,,
15.	iv.	Bone	B½ × 15–14 at 14″.
	v.	Soil	D × 19 at 16″.
16.	vi.	Iron	A½ × 16–14 at 14″–16″.
17.	vii.	Bone	C × 17½ at 15″.
	viii.	Pottery	,,
	ix.	Shell	,,
18.	i.	Flakes	A–D × 19–14 to 24″.
	ii.	Bones	,,
	iii.	Pottery	,,
	iv.	Painted (?) Pebbles ..	,,
19.	i.	Flakes	A–D × 14–8 to 18″.
	ii.	Pottery	,,
	iii.	Bone	,,
	iv.	Shell	,,
	v.	Pigment ?	,,
	vi.	Quartz implement ..	,,

No.			
20.	i. Pottery	A–D ×8–0.	Surface to 8″.
	ii. Flakes	,,	,,
	iii. Bone	,,	,,
	iv. Ivory	,,	,,
	v. Shell	,,	,,
	vi. Quartz implements	,,	,,
	vii. Wood (?)	,,	,,
	viii. Bone	B–C ×1–0 at 4″.	
21.	i. Pottery	D–Rock ×8–0.	Surface to 1″.
	ii. Flakes	,,	,,
	iii. Bone	,,	,,
	iv. Shell	,,	,,
	v. Charcoal	,,	,,
22.	i. Pottery	D–Rock ×8–0.	1″ to 2″.
	ii. Bone	,,	,,
	iii. Flakes	,,	,,
	iv. Tooth	,,	,,
	v. Wood	,,	,,
	vi. Shell	,,	,,
	vii. Charcoal	,,	,,
	viii. Quartz implements	,,	,,
	ix. Soil and rock samples	,,	,,
23.	i. Pottery	D–G ×8–0 at 2″–3″.	
	ii. Flakes	,,	
	iii. Bone	,,	
	iv. Shell	,,	
	v. Wood	G ×1 at 2″.	
24.	i. Pottery	D–G ×6–0 at 3″–5″.	
	ii. Bone	,,	
	iii. Flakes	,,	
	iv. Quartz implements	,,	
	v. Shell	,,	
	vi. Glass	,,	
	vii. Ash ?	,,	
25.	i. Flakes	D–G ×6–0 at 5″–8″.	
	ii. Bone	,,	
	iii. Pottery	,,	
	iv. Shell	,,	

No.			
	v.	Charcoal	D–G × 6–0 at 5″–8″.
	vi.	Rhodent	,,
	vii.	Quartz implements ..	,,
	viii.	Bone	F2 × 5 at 8″.
26.	i.	Flakes	A–G × 2⅓–0 at 8″ to bed-rock at 6″–16″.
	ii.	Bone	,, ,, ,,
	iii.	Pottery	,, ,, ,,
	iv.	Shell	,, ,, ,,
	v.	Rhodent	,, ,, ,,
	vi.	Quartz implements ..	,, ,, ,,
27.	i.	Flakes	A–G × 3⅔–2⅓ at 8″–13″.
	ii.	Bone	,, ,,
	iii.	Pottery	,, ,,
	iv.	Quartz implements ..	,, ,,
	v.	Shell	,, ,,
	vi.	Stone ?	,, ,,
28.	i.	Flakes	A–G × 3⅔–2⅓ at 13″ to bed-rock.
	ii.	Bone	,, ,,
	iii.	Quartz implements ..	,, ,,
29.	i.	Flakes	H–I × 3⅔–0. Surface to bed-rock. (Soil from under rock-shelf.)
	ii.	Bone	,, ,, ,,
	iii.	Shell	,, ,, ,,
	iv.	Rhodent	,, ,, ,,
	v.	Pottery	,, ,, ,,
29A.	i.	Flakes	G–I × 6½–3⅔ at surface to bed-rock (Soil from under rock-shelf.)
	ii.	Bone	,, ,, ,,
30.	i.	Flakes	A–G × 6½–3⅔ at 8″–14″.
	ii.	Bone	,, ,,
	iii.	Pottery	,, ,,
	iv.	Quartz implements ..	,, ,,
	v.	Shell	,, ,,
	vi.	Ivory	,, ,,
	vii.	Wood	,, ,,
31.	i.	Flakes	A–G × 6½–3⅔, to bed-rock.
	ii.	Bone	,, ,,
	iii.	Stone ?	,, ,,
	iv.	Shell ? Wood ? Bone?	,, ,,

No.		
32. i.	Flakes	C–G ×10–6. Surface to 8″ between layers of rock, and surrounding them.
ii.	Bones	,, ,, ,,
iii.	Pottery	,, ,, ,,
iv.	Quartz implements ..	,, ,, ,,
v.	Pigment (?)	,, ,, ,,
vi.	Shell	,, ,, ,,
32A. i.	Flakes ..	C–E ×8–6, at 6″ to 14″ from around rock.
ii.	Bone	,, ,, ,,
iii.	Pottery	,, ,, ,,
iv.	Charcoal	,, ,, ,,
32B. i.	Flakes	E–G ×10–5. Surface (?) to 11″.
ii.	Quartz implements ..	,, ,, ,,
iii.	Pottery	,, ,, ,,
iv.	Bone	,, ,, ,,
33. i.	Flakes	A–C ×8–6. Surface (?) to 8″.
ii.	Bone	,, ,, ,,
iii.	Quartz implements ..	,, ,, ,,
iv.	Pottery	,, ,, ,,
34. i.	Flakes	A–C ×8–5. From 12″ above bed-rock to bed-rock.
ii.	Bone	,, ,, ,,
iii.	Pottery	,, ,, ,,
iv.	Quartz implements ..	,, ,, ,,
v.	Pigment (?)	,, ,, ,,
35. i.	Flakes	C–E ×8–6. From below rock lying 5″–8″ above bed-rock to bed-rock.
ii.	Bone	,, ,, ,,
iii.	Quartz implements ..	,, ,, ,,
iv.	Rock sample ..	,, ,, ,,
35A. i.	Flakes	E–G ×10–5. 8″ to bed-rock.
ii.	Bone	,, ,,
iii.	Pottery	,, ,,
iv.	Pigment ?	,, ,,
v.	Rock sample ..	,, ,,

No.			
*35B.	i.	Flakes	E–G ×7–6. From 4″ above bed-rock to bed-rock, underneath layer of rock.
	ii.	Quartz Implements ..	,, ,, ,,
	iii.	Charcoal	,, ,, ,,
	iv.	Dead roots (sample) ..	,, ,, ,,
36.	i.	Flakes	D–F ×19–9. From previous levels a layer of 1″–6″ to maximum depth of 20″.
	ii.	Bone	,, ,, ,,
	iii.	Pottery	,, ,, ,,
	iv.	Quartz implements ..	,, ,, ,,
	v.	Soil sample ..	D ×14 at 10″.
	vi.	Rock sample ..	E ×13 at 14″.
37.	i.	Flakes	D–F ×19–9. From previous level a layer of 6″ to maximum depth of 26″.
	ii.	Bone	,, ,, ,,
	*iii.	Pottery (1 piece) ..	,, ,, ,,
	iv.	Charcoal	,, ,, ,,
	v.	Quartz implements ..	,, ,, ,,
	vi.	Soil sample ..	,, ,, ,,
38.	i.	Teeth	D–F ×14–13 at 21″ (belonging to skeleton ?).
39.	i.	Pottery	E–I ×18–12½. Site of Xmas excavation to maximum depth of 28″ from 2″.
	ii.	Flakes	,, ,, ,,
	iii.	Bone	,, ,, ,,
	iv.	Charcoal	,, ,, ,,
	v.	Wood ?	,, ,, ,,
	vi.	Rock samples ..	,, ,, ,,
	vii.	Shell	,, ,, ,,
	viii.	Quartz implements ..	,, ,, ,,
40.	i.	Flakes	E½–F½ ×16½–12½, with skeleton at 18″–21″.
	ii.	Bone	,, ,, ,,
	iii.	Quartz implements ..	,, ,, ,,
	iv.	Wood samples ? ..	,, ,, ,,
	v.	Rock samples ..	,, ,, ,,
	vi.	Charcoal	,, ,, ,,

fragments, however, Dr. Dudley Buxton, our Reader in Physical Anthropology, was able to write the enclosed report. We very much hope that you will be able to secure other specimens, as the caves in those parts might well make valuable contributions to the ancient history of India.

Yours Sincerely,

(Sd.) T. K. PENNIMAN.

REPORT.

With the exception of a porcupine tooth, included in 2, and pieces of stalactite in 5, all the remains submitted for examination are human.

They are as follows:

A. Skeleton 2. Fragments of the skeleton of a child of about 6 or 7 years old. There is evidence even at that age of hard diet, such as is usual among primitive peoples. It is interesting to note that even at that early age there are signs of flattening and bowing of the thigh bone. This again is characteristic of primitive peoples.

B. Skeleton 3. Very fragmentary remains of a child of about 11 years old. The teeth here also show a great deal of wear. They are small. Marked bowing of the thigh bone but otherwise too fragmentary for any definite conclusions.

C. Skeleton 5. Lower limb and jaw of an adult, possibly a man. My impression is that the bones may be of some antiquity, but it is impossible to say. The individual was muscular, had small teeth and jaws and probably followed a primitive method of life. There is however no evidence, from the specimens submitted to me that racially he differed at all from the modern peoples of this region. It is of course impossible to make any definite statement without the evidence of the cranial bones which except for the jaws have perished. I am not fully convinced that the limb bones of 5 and the jaw belong to the same individual, but possibly difference in the surrounding may have affected the jaw differently from the other bones. It would be most valuable if some skulls could be obtained from which definite conclusion as to the racial affinities of the bones could be drawn.

(Sd.) L. H. DUDLEY BUXTON.

Appendix IX.

Field Notes.

October 23rd, 1934. *Dorothy Deep Shelter.*†

No. 1. Mapped out floor of cave in contour.

October 24th.—Commenced trial trench N. and S. to obtain evidence
1 of stratification of soil. Noticed about 1–2 feet below surface what appeared to be recently formed sandstone containing embedded vegetable matter—some sort of food or nutshell. Native name? Live burrowing insects were found below this layer.

Soil in S. section of trench quite dry and powdery, in spite of over 100 inches rainfall. In N. section (exposed to rain) soil still damp. Roots abundant and white ants.

October 25th.—Deepened trench to bed-rock.

October 26th.—Observed stratification of soil. Commenced removal of
2 top layer of soil. Removed from 3″–6″ in area B–D × 21–7. Soil below 2″ quite damp as far in as line D evidently due to monsoon.
3 *October 27th.*—Continued excavation of area B–D2 × 19–7. In A–B × 18–15
4 gravel layer at 4 inches. But this is on steep outer slope and may be partly
5 or wholly Xmas sieving. Piece of pot (No. 2) at B–C × 15–6″. No. 3 small piece of bone at D × 12·3″, at depth of 3″.

N.B.—Surface soil of cave in practically exactly parallel plane to folding of rock, which is nearly horizontal, but slopes at about 1 in 20 towards N. and 1 in 8 towards W.

N.B.—From D1 to B along 19, to D1 to C along 9 fairly compact and moist soil of specimen 4 found uniformly to depth of 6″ almost free of gitti.

6 *N.B.*—At 10 inches soil was so wet as to be almost unsievable at C × 15–18.

Discovered bones along D1 at 6″ depth, between 15 and 16. So start
7 excavating area 19–12 × D1–E3 to 6″.

N.B.—Soil damp at E × 14 at depth of 3″. !

8 *October 29th.*—Excavated from surface to 4″, area 13–6 × D2–G, soil damp at 4″ right up to G. Gitti reached at 3″ on G.

9 Excavated to 8″ area 12–6 × G–rock. From this and previous area (*i.e.*, 13–6 × D2–G) small fragments of burnt bone—apparently human. Gitti reached at 2–3 inches.

10 Removed surface soil (probably in-falls) from Xmas excavation.

6 B–D2 × 19–7, continued excavation to 10″.

Charcoal at 8″ C–D × 14–15.

Tooth of very large animal at 11 × C at 9″.

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† Marginal numbers refer to Appendix VI.

11 *October* 31*st*.—19–12 × D1–E3, 6″ to 10″.

N.B.—Soil of No. 4 variety present to depth of 10″ along whole of section.

12 12–6 × D2–G, 4″–10″ at 6′–8′. Bed-rock reached at 4–6 inches. Gitti mixed with soil at 9–12 along G at 4″–6″ along D2 at 10″.

13 A–B × 15–9 from surface to 6″.

14 A–G × Trench–14, 10″–18″. Charcoal at B3 × 18 at 12″ (No. 6).

No. 7. Sample of Muram soil found everywhere beneath No. 4 variety sample taken from D × 19 at 16″.

15 B × 15 at 12″. Charcoal.

No. 8. B½ × 14–15. Animal's jaw found among charcoal.

N.B.—No flints found in this excavation N. of D.

16 Piece of iron found on A½ × 14–16 at 14″–16″.

17 No. 9. Bone with charcoal at 17½ × C at 15″.

18 *November* 1*st*.—Excavated D–A × 19–14 to depth of 24″.

19 Excavated D–A × 14–8 to depth of 18″.

20, 21 Excavated D–A × 8–0 to depth of 6″. Animal jaw at B–C × 0–1.

N.B.—6–8 × B–G is a layer of rock, just below surface, at right angles to main shelf.

20 *November* 2*nd*.—Excavated 0–8 × D–A from 6″ to 8″.

21 Excavated D–rock × 0–8 to depth of 1″ from surface. Flints begin at ½″–1″ below surface, but are rare. 4 flakes only. This is loose surface soil.

22 1″–2″ (where soft soil is found). Ashes at E–F × 1–2 at 2″. Level of loose pebbles mixed with soil reached at 2″.

N.B.—Soil quite dry.

23 2″–3″. Soil dry.

24 3″–5″. *Charcoal and ash, frequent, accompanied by crab shell. Soil somewhat damp at about 4″. Along D–E at E × 0 bed-rock at 4″. Flints more abundant in 0–2 × D–E, and D–B × 0–2.

N.B.—Soil quite dry at 5″ in D–E½ × 2–6.

25 5″–8″. Soil compact, and slightly damp even in F–G.

26 *November* 3*rd*.—Excavated A–G × 0–3 from 6″–8″ to bed-rock, *i.e.*, at 6″–16″. Ordinary loose soil throughout, slightly damp mixed in F–G, with a good deal of murum, and in E—A with quartz pebbles and some chunks of sandstone.

N.B.—White-ant house in A–B section. So far wherever earth has been found solidly caked there has been evidence of white ants.

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* Especially in area 1–2 × F–G.

27 A–G × 28″–44″ to level 3″ above bed-rock* on line 28″ only piece of pottery and that under rock-shelf at G.

28 A–G × 28″–44″ to bed-rock.

N.B.—Soil increasingly‡ mixed with chunks of sandstone or quartz pebbles. Soil only very slightly damp, except in neighbourhood of roofs in A–D Section. Bed-rock fairly flat—so that this excavation is virtually the last 3″ of soil lying on the floor throughout this section.

29 H–I × 0–44″. Surface to bed-rock (*i.e.*, exclusively soil from under rock-shelf). Loose sand, practically free from sandstone chunks and gitti (*i.e.*, quartz pebbles) apparently windblown. Slightly damp owing to presence of roots.

30 44″–77″ × A–G, removed 2″–6″ so as to leave 6″§ above bed-rock on line 44. Same loose, powdery soil as before, mixed with gitti and sandstone chunks. Very slightly damp.

Hearth at D–C½ × 67″–77″ in 1st 5 inches of this excavation (*i.e.*, about 14–18″ below original surface with 3 or 4 very small bone fragments one core and one piece of pottery—but no crab.

31 44″–77″ × A–G, removed remaining soil to bed-rock. Same soil as above, but with large element of gitti especially in A–D and sandstone chunks the whole lying quite loose upon bed-rock, which continued to be almost level.

N.B.—The last 3 inches in A–D were absolutely barren, and nearly so in D–G.

32 *November 6th.*—Removed rocks from Section 6′–8′ × C–G. Surface to 12″ above bed-rock on 6.

Note.—Rock was Cuccha, in same plane as cliff. Probably slip from shelf. Between the layers was ordinary soil (No. 4) among interstices this penetrated to within 4″ of bed-rock.

33 6–8 × A–C, to 12″ above bed-rock on 6.

34 6–8 × A–C to bed-rock.

35B E–G × 5–7, cleared out soil lying on bed-rock under fallen rock to height of 2″–6″. Soil quite damp, and interprenate with roots.

C–E × 5½—8. Cleared out soil lying on bed-rock under fallen rock to height of from to 7″.

36 *November 7th.*—D–F × 9–19. Removed 1″–6″ to depth of 20″ on 19 and to 15″ above bed-rock on 9. For some part this was grey soil, of the kind usually found on surface. Sample is N. 13, from D × 14 at about 10″ (?) from surface excavated to gitti level.

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* *i.e.*, 13″ below surface from 8″.

‡ From 3″–8″ above it.

§ *i.e.*, from 8″ × 10″/14″ below surface.

37 D–F×9–19, a further 6″ to depth of 26″ at 19 and 9″ above bed-rock on 9. Below layer of gitti abundant brown soil (Sample No. 14). My impression is that this brown layer is prolific of Tardenoisian flints, probably more than the higher lying grey soil.

38 At 13–14×D–E, several teeth—human? Depth 120 cm. below datum level. Ditto bone fragment.

39 *November 8th.*—Excavated Xmas excavation site to 28–24″ below surface from level of Xmas (2″–24″).

H×13–14 at 95 cm. below datum. Tooth No. 15.

40 Skeleton at E½–F½ by 12½×16½ at 115 cm. below datum. Visible length 50″.

N.B.—Pot was from surface. Ditto beer-bottle cap, though found at 22″ (*i.e.*, had fallen into bottom of Xmas pit!).

41 *November 9th.*—Excavated B–D×19–9 from level as follows:—

Along D—at	19.	102 cm.	at	14.	123 cm.
	18.	105 ,,		13.	124 ,,
	17.	106 ,,		12.	129 ,,
	16.	115 ,,		11.	130 ,,
	15.	121 ,,		10.	134 ,,
Along B—at	19.	114 cm.	at	14.	131 cm.
	18.	118 ,,		13.	132 ,,
	17.	125 ,,		12.	135 ,,
	16.	126 ,,		11.	140 ,,
	15.	129 ,,		10.	143 ,,

Below datum:—

To:—Along D—at	19.	122 cm.	at	14.	144 cm.
	18.	126 ,,		13.	144 ,,
	17.	133 ,,		12.	145 ,,
	16.	137 ,,		11.	145 ,,
	15.	141 ,,		10.	148 ,,
Along B—at	19.	128 cm.	at	14.	143 cm.
	18.	130 ,,		13.	142 ,,
	17.	136 ,,		12.	149 ,,
	16.	138 ,,		11.	147 ,,
	15.	141 ,,		10.	150 ,,
				9.	153 ,,

Soil mainly gitti and chunks of sandstone.

42 Same area B–D×19–9 from above level to bed-rock. Disclosed at
43 11–12×D–B, two stones lying flat like paved steps on the floor. On removal there was a level inch of earth and gitti, absolutely flat and undisturbed since original formation. Isolated this earth and sieved it carefully. Definite find of flints.

Similar stone at 14–15½ × B½–D. This similarly sifted with care and yielded flints. So this culture definitely extends in time from date before first rockfall.

N.B.—These three rocks really all one large piece with flat underside and fairly flat upperside. It slid off parent shelf and landed bottom down on the inch or so of soil already existent on floor of cave. It broke into 3 on impact. The same thing can be seen to have happened recently in another part of the cave. And several new falls can be seen preparing! The fact that these three pieces are found resting on a uniform layer of earth, and nowhere touching the floor beneath is proof that the earth covering the floor was there before the fall, and has been imprisoned ever since.

Holding *inter alia* the flints, that must therefore have been there before the fall.

42 *November* 10*th*.—Continued excavating B–D × 19–9 to bed-rock. Flakes found on flat inch of soil over bed-rock, underlying flat rock at depth
44 of 177–182 cm. below datum.

Bed-rock is as follows:—

On D—at	19.	...	at 9.	162 cm.
	18.	...	8.	161 ,,
	17.	177 cm.	7.	165 ,,
	16.	180 ,,	6.	166 ,,
	15.	172 ,,	5.	167 ,,
	14.	159 ,,	4.	171 ,,
	13.	157 ,,	3.	169 ,,
	12.	158 ,,	2.	165 ,,
	11.	158 ,,	1.	159 ,,
	10.	163 ,,	0.	154 ,,
On B—at	19.	...	at 9.	170 cm.
	18.	...	8.	171 ,,
	17.	...	7.	170 ,,
	16.	188 cm.	6.	169 ,,
	15.	176 ,,	5.	170 ,,
	14.	169 ,,	4.	172 ,,
	13.	161 ,,	3.	173 ,,
	12.	162 ,,	2.	171 ,,
	11.	159 ,,	1.	171 ,,
	10.	168 ,,		

45 A–B × 8′–19′. Removed 6″ from previous level.

Note.—On the outside edge this means from 6″–12″ below surface, while on B it means from about 22″–28″ below surface.

46 Fossilised bone found at B × 16–17 at 127–137 cm.

47 A–B × 8–14, remainder to rock bottom.

A–B × 14–19. Removed (without sieving) to bed-rock. Sifted 3 trays from bed-rock at 18–19 × B–A at depth of 5 feet. Results sterile.

FIG. 1. Rock-shelter Excavation, Diwali 1934. Newspaper covers skeleton.

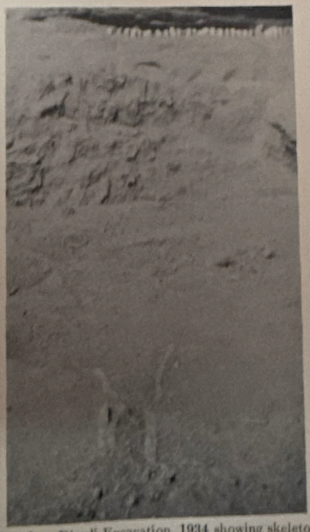

FIG. 2. Diwali Excavation, 1934 showing skeleton *in situ*.